UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,609	09/06/2003	David A. Frazer	906-03080601	7987

25864 7590 05/01/2006

CHARLES C.H. WU
98 DISCOVERY
IRVINE, CA 92618-3105

EXAMINER
ELLIS, KEVIN L

ART UNIT	PAPER NUMBER
2188	

DATE MAILED: 05/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/656,609	FRAZER, DAVID A.	
	Examiner	Art Unit	
	Kevin L. Ellis	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-10 and 12* is/are rejected.

7)☒ Claim(s) *5 and 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

1. Claims 1-12 are presented for examination.

2. Information disclosed and listed on PTO 1449 has been considered.

Claim Rejections – 35 USC § 103

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 6, 7, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Foster, U.S. Patent 6,052,134.

A) As to claims 1 and 7, Foster discloses the invention substantially as claimed. There is a method for efficient access to data using a memory device with at least one memory module, wherein each memory module has at least one bank with multiple rows (see Abstract and Fig 3), the method comprising the steps of maintaining address information of a current row for each bank within each memory module (see Fig 3 Ref 86, Col 4 Lines 15-20, and Col 11 Lines 8-11), receiving a request for an incoming row and determining if the incoming row matches the current row based on the address information and if so, immediately accessing the current row without closing and reopening the current row (Col 4 Lines 15-20). However, Foster does not specifically state that the data stored in the memory is image data. Foster does not place a limitation on the type of data stored in the memory, only that data is stored in the memory. A

generic reference to "data" encompasses and includes a more specific type of data such as "image data". Accordingly, it would have been obvious to one having ordinary skill in the art at the time of the invention that the system of Foster could store image data in the memory modules. The performance benefits realized from keeping pages open would mean that the image data could be accessed in a more efficient manner.

B) As to claims 6 and 12, Foster teaches the use of SDRAM modules (see Col 4 Line 25).

5. Claims 1-3, 6-9, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Stracovsky et al., U.S. Patent 6,286,075 in view of Foster, U.S. Patent 6,052,134.

A) As to claims 1 and 7, Stracovsky et al. discloses the invention substantially as claimed. There is a method for efficient access to data using a memory device with at least one memory module, wherein each memory module has at least one bank with multiple rows (see Col 7 Line 56 to Col 8 Line 2), the method comprising the steps of maintaining address information of a current row for each bank within each memory module (see Col 7 Line 56 to Col 8 Line 2 and Col 10 Lines 46-54), receiving a request for an incoming row (see Fig 5), and determining if the incoming row matches the current row based on the address information (see Fig 5 Ref 502 and 504) and if so, immediately accessing the current row without closing and reopening the current row (Fig 5 Ref 506). Stracovsky et al. appears to teach both storing all opened pages for a particular device (Col 7 Lines 60-61) and storing less then all the opened pages for a particular device (Col 10 Lines 46-54). If the number of memory modules was small then the system could

easily store all the opened pages and not suffer any performance degradation. In addition, Foster which discloses a system for keeping pages open in memory modules specifically teaches that the system can track all the pages that can possibly be kept open (see Col 11 Lines 8-11). Accordingly, it would have been obvious to one having ordinary skill in the art at the time of the invention that depending up the memory configuration the memory controller can be designed to kept track of all open pages in each memory device as taught by Stracovsky et al. and Foster. However, Stracovsky et al. does not specifically state that the data stored in the memory is image data. Stracovsky et al. does not place a limitation on the type of data stored in the memory, only that data is stored in the memory. A generic reference to "data" encompasses and includes a more specific type of data such as "image data". Accordingly, it would have been obvious to one having ordinary skill in the art at the time of the invention that the system of Stracovsky et al. could store image data in the memory modules. The performance benefits realized from keeping pages open would mean that the image data could be accessed in a more efficient manner.

B) As to claims 2 and 8, the system of Stracovsky et al. does maintain bits of information as to whether the page is open is closed (see Col 7 Lines 11-38).

C) As to claims 3 and 9, the system of Stracovsky et al. does monitor timing parameters to detect legal and illegal actions (see Col 10 Lines 1-45).

D) As to claims 6 and 12, Stracovsky et al. teaches the use of SDRAM modules (see Col 6 Lines 23-27).

6. Claims 4 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Stracovsky et al., U.S. Patent 6,286,075, and Foster, U.S. Patent 6,052,134, in view of Cherabuddi et al., U.S. Patent 6,535,966.

A) As to claims 4 and 10, Stracovksy et al. and Foster disclose the invention substantially as claimed. However, they do not disclose positioning adjacent lines of the image data in separate memory banks to optimize access to multiple lines of data. Cherabuddi et al. teaches having addresses of adjacent data (i.e. adjacent lines of image data) be placed in different memory banks so that sequential addresses are located in simultaneously open pages (see Col 3 Lines 19-24 and Col 4 Line 56 to Col 5 Line 18). Accordingly, it would have been obvious to one having ordinary skill in the art at the time of the invention to have utilized the teachings of Cherabuddi et al. with those of Stracovsky et al. and Foster and store adjacent lines of image data (i.e. adjacent data) in separate memory banks as taught by Cherabuddi et al. as this would provide a performance increase when sequentially accessing data as the addresses would fall within different open pages.

Allowable Claims

7. Claims 5 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L. Ellis whose telephone number is 571-272-4205. The examiner can normally be reached on weekdays from 6:00AM-2:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone numbers for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Kevin L. Ellis
Primary Examiner
April 27, 2006